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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,713	07/15/2003	Scott E. Moore	108298522US1	9587

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EXAMINER

ROSENBERGER, RICHARD A

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 09/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/620,713

Applicant(s)

MOORE, SCOTT E.

Examiner

Richard A Rosenberg

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 46-65 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 59-65 is/are allowed.
- 6) ☒ Claim(s) 46 and 52-55 is/are rejected.
- 7) ☒ Claim(s) 47-51, 55 and 56 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

1. Upon consideration of the remarks filed 2 September 2004, the finality of the previous rejection is withdrawn.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 46 is rejected under 35 U.S.C. 102(b) as being anticipated by Blanchard et al (US 4,145,703).

Blanchard et al shows, in Figure 5 for example, a microelectronic substrate assembly comprising a substrate (10A. 12A. 16A, 20A taken together), a first layer (25B) of silicon nitride disposed over at least a portion of the substrate. There is a second layer (26A) of a second material (polysilicon; column 7 line 56) disposed over the first layer. There is a third layer (28A) of a third material (silicon dioxide). The silicon nitride, polysilicon, and silicon dioxide layers all are inherently different colors because of their different materials.

This structure is all that is claimed. The phrases “for use on controlling mechanical and/or chemical-mechanical planarization processes” and “defining a desired endpoint elevation for a planarizing cycle” are non-limiting statements of

intended use; there is no structure to relate the claim to this, or any use. The reference shows the structure claimed.

The claim also labels the third layer “a sacrificial marker layer”. However, the only structure given the third layer is that is it “of a third material having a third color optically distinct from the first and second materials”. While Applicant may choose to call the layer anything he likes, the reference shows the structure claimed, which is what is required for a proper rejection.

4. Claims 52-55 are rejected under 35 U.S.C. 102(b) as being anticipated by Blanchard et al (US 4,145,703).

Blanchard et al shows, in Figure 5 for example, a microelectronic substrate assembly comprising a substrate (10A, 12A, 16A, 20A taken together), a first layer (25B) of a first material (silicon nitride, column 7, line 50) disposed over at least a portion of the substrate. The reference shows a second layer (28A) of a second material (silicon dioxide, column 7, line 54), and shows a third layer (26A) of a third material (polysilicon, column 7, line 56) disposed between the first and second layers. The silicon nitride, silicon dioxide, and polysilicon layers all are inherently different colors because of their different materials.

In the reference, the third layer is on the first layer and the second layer is on the third layer (in both claims 53 and 55). As pointed out above, the first layer is silicon nitride, and the second layer is silicon dioxide (in both claims 54 and 55).

See the remarks above in relation this reference and claims 46. As with that claim, the reference shows the claimed structure. The claimed intended use and choice of label for the third layer does not add structure or modify the claimed structure, and thus does not, and cannot, contribute to the patentability of the claim.

5. It appears that claims 59-65 appear to be allowable. The Lustig et al reference does not appear to teach the claimed use of first and second light pulsed of different frequencies (that is, wavelengths) and using both to control a planarization process when a underlying layer is exposed. The Lustig reference shows using a single light source, not the two of the claims.

The remarks filed 2 September 2004 argue that the Lustig et al reference does not show “ a sacrificial marker layer” (remarks, page 12, lines 23-24). As noted above, attaching this appellation a layer adds nothing to the method of the claims as there is no structure or method step to give meaning to the term “sacrificial marker layer” beyond a convenient term of reference; the definition of the term in the claim is that it is between two other layers with a color and material different that the other two layer, and the light intensities in the measuring apparatus indicates when it is “exposed and/or at least partially removed”. Lustig used optical reflectance measurements to determine when an underlying layer is exposed, that is, the overlying layer is removed (column 9, lines 5-16, for example). The

underlying layer of the workpiece of Lustig thus is the claimed layer of claim 59; choosing to call it or not to call it a “sacrificial layer” does not change the structure or method claimed.

6. Claims 56-58 claim that the third layer is red, black or white, respectively. The Blanchard et al reference shows the third layer being made of polysilicon (see the rejection of claim 52 above). The color of polysilicon in such a structure is a matter of fact, not of law; if polysilicon is red, or black, or white, the corresponding claim 56, 57 or 58 would be met by the Blanchard et al reference in the same manner as is claim 52. However, Applicants in the remarks filed 2 September 2004 state that Blanchard does not disclose the third layer being red, black or white (claim 12, lines 2-4). This observation, to be relevant to the patentability of the claims, must relate to the actual color of the third layer, that is, to the actual color of a layer of polysilicon; the color of this polysilicon layer does not depend on whether or not Blanchard et al, or any other reference, discloses that color. Based upon the assumption that Applicant, apparently being a worker in the art, is more aware than is the Examiner of the actual color of the various materials disclosed by Blanchard, the comments in the remarks that Blanchard does not disclose a red, black or white intermediate layer are taken to be correct, and thus claims 56-58 appear to contain allowable subject matter.

7. As set forth in the previous office action, the Van Laarhoven (US 4,946,550) shows the claimed structure of claims 46-51 with the possible exception of the third layer (5), being a resist layer being a "third color optically distinct from the first and second colors of the first and second material". Here, as above, merely calling the layer a "sacrificial marker layer" does not set forth structure to distinguish the resist layer of the claim to Van Laarhoven, not does adding statements of intended use which do not add structure. In the Van Laarhoven patent the resist is chosen to be suitable for photolithographic purposes, and thus it would have been obvious to choose any resist suitable for that purpose. If any of the suitable resists which are known and are known to be suitable for the purposes of the Van Laarhoven reference have "a third color optically distinct from the first and second colors of the first and second layers", that is, a different color than silicon nitride and silicon dioxide, then the Van Laarhoven reference would at least render obvious claim 46 under 35 USC 103, as the resulting structure would be that of the claim. Similarly, if any resist which was obvious to use for the purposes of Van Laarhoven were not only a differently-color, but also were opaque, it would render obvious claim 47; if it were also optically transparent, it would render obvious claim 48; if it were also red, black, or white it would render claims 49, 50 and 51, respectively, obvious. This is a factual issue, not a legal one; the actual color of the resists available to be used for the purposes of Van Laarhoven are what they factually are; the color of these resists

in not created by the disclosure of this or that reference, and the lack of disclosure in any reference does not remove the colors that they actually have.

However, Applicant in the remarks present arguments, to the degree they are relevant to the patentability of the claims, are based upon the factual statement that such resists suitable for the purposes of the Van Laarhoven reference are not in fact a different color than both silicon nitride and silicon dioxide. Applicant in the remarks point out that the reference "does not disclose that its resist is a different color than the underlying layers", and that "resists are typically clear, transparent liquids" (page 9, lines 20-22), and "is not described as being optically distinguishable from the underlying layers" (page 10, line 2). Clearly whether a layer is optically distinguishable from an underlying area is a matter of observational fact, and clearly does not depend upon whether or not any particular reference mentions that it is or is not. Thus the actual patentability of the claim is based upon whether or not factually the resist layer may be, within ordinary skill in the art, chosen to be as resist that happens to have, factually, a different color than the underlying area; patentability of a claimed structure depends on the structure, not on the disclosed reasons for producing that structure. Based upon the assumption that Applicant, apparently being a worker in the art, is more aware than is the Examiner of the actual color of the various available resists suitable for use in the structure of Van Laarhoven, the comments in the remarks that Van Laarhoven does not disclose a resist on a different color than the first to layers,

either opaque or transparent, and in particular not being red, black or white, are taken to be correct, and thus claims 47-51 appear to contain allowable subject matter.

8. Claim 47-51 and 56-55, as discussed above, appear to contain allowable subject matter. These claims are objected to as being dependent from unallowed claims, and would be allowable if rewritten in independent form including all of the limitations of their respective parent claims.

9. Trudel (US 4,305,760) notes that "polysilicon can be distinguished from films such as oxide films by color or reflectance ..." (column 4, line 35-37) and teaches using a polysilicon film as a monitor film for controlling etching (column 4, lines 37-42).

10. The remarks filed 2 September 2004 argue that one of the claimed layers is disclosed as being a sacrificial marker layer. However, as set forth above, this is not relevant to the instant claims, which provide no structure to distinguish the layer from any other layer. Applicant may, of course refer to the layer by any term he wishes, but the scope of the claims is determined by the structure that is set forth in the claim, not by the mere choice of terminology used in the claim. The remarks do not point out, and apparently the claims do not contain, any claimed structure that

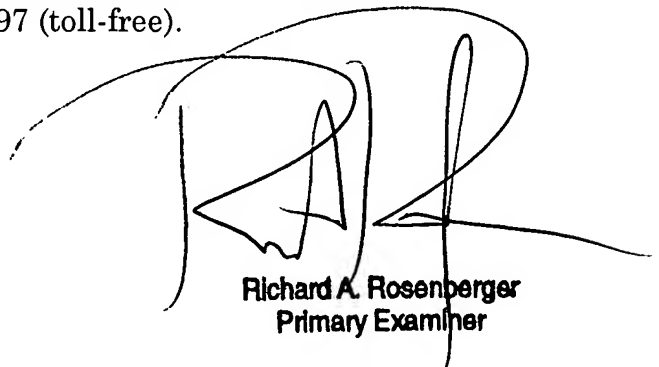
would distinguish the claimed third layers from the corresponding layers in the references based upon the choice on terminology. The remark on page 11 of the remarks, lines 18-21, that "it is incorrect to characterize the polysilicon layer 26A as a sacrificial layer that marks the endpoint or other location in the film stack for subsequent processing" misses the fact that the claims do not define the structure of the claims in any to make the term "sacrificial layer" a structural limitation. The claims calls for a layer with certain characteristics, such as being a different material and color than related layers, which is shown by the reference. The remarks impermissibly read the specification into the claims.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard A Rosenberger whose telephone number is (571) 272-2428. The examiner can normally be reached on Monday through Friday during the hours of 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

R. A. Rosenberger
20 September 2004



Richard A. Rosenberger
Primary Examiner